

CLAIM AMENDMENTS

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims

1. (Currently Amended) A method of managing virtual routing forwarding (VRF) tables at a provider edge (PE) ~~PE~~-router of a L3 virtual private network (VPN), said PE router maintaining a VPN-IP master routing information base (RIB) and a sub-RIB for each said VRF table, comprising the steps of:

maintaining an import route target (ImpRT) tree comprising all ImpRT attributes currently configured on said PE router;

modifying an ~~ImpRTi~~ ImpRT attribute of a ~~VRFi~~ VRF table;

searching said ImpRT tree for a match to said modified ImpRT ~~ImpRTi~~ attribute to identify a ~~VRFm~~ VRF table having ~~said ImpRTi~~ a matching ImpRT attribute;

for peers supporting a route refresh feature, performing a route refresh operation only when a~~said~~ match is not found;

for peers that do not support the route refresh feature, maintaining rejected routes in a rejected routes tree; and

updating said VRFi table accordingly, using an association between each said VRF table and a respective sub-RIB

17 searching for routes in a sub-RIB associated with said VRF table; and
18 copying said routes from said sub-RIB into said VRF table based on all route
19 target attributes configured for said VRF table, including said modified ImpRT
20 attribute.

1 2. (Currently Amended) The method of claim 1, further comprising:
2 ~~wherein said ImpRT tree maintains~~
3 maintaining a list of all ImpRT attributes at a PE node with said ImpRT tree,
4 each ImpRT attribute being associated with all VRF tables that are currently
5 configured with said modified ImpRT ~~ImpRT~~ attribute.

1 3. (Currently Amended) The method of claim 1, further comprising:
2 ~~wherein said step of modifying comprises~~
3 adding said modified ImpRT ~~ImpRTi~~ attribute to said VRFi ~~VRF~~ table.

1 4. (Canceled)

1 5. (Currently Amended) The method of ~~claim 4~~ claim 3, further comprising:
2 updating said ImpRT tree to include an association between said modified
3 ~~ImpRTi~~ ImpRT attribute and said VRFi ~~VRF~~ table.

6-7. (Canceled)

8. (Currently Amended) The method of ~~claim 7~~ claim 1, further comprising:
adding said routes ~~from~~ to each VRF table in a routing database available at
said PE router.

9. (Currently Amended) The method of claim 2, wherein said ~~step of searching~~
is performed through said master RIB.

10. (Previously Presented) The method of claim 9, wherein said master RIB
includes all routes in all VRF tables at said PE router and further includes all
routes that were filtered out at said PE router using ImpRT attributes.

11. (Currently Amended) The method of claim 1, further comprising:
~~wherein said step of modifying comprises~~
removing said ImpRT import-route-target ~~ImpRTi~~ from said ~~VRFi~~ VRF table.

12. (Currently Amended) The method of claim 11, further comprising:
~~wherein said step of updating comprises~~

3 parsing all routes in said ~~VRFi-VRF~~ table and removing all routes from said
4 VRF table that no longer match said ImpRT ~~remaining import route targets of said~~
5 ~~VRFi-VRF~~ table.

1 13. (Previously Presented) The method of claim 12, further comprising:
2 deleting all routes that no longer match from the sub-RIB of said VRF table.

1 14. (Currently Amended) The method of claim 13, further comprising:
2 deleting in said master RIB every route ~~Rd~~ that no longer matches any
3 ImpRT attribute in said ImpRT tree.

1 15. (Canceled)

1 16. (Currently Amended) At a provider edge PE router, a tree data structure,
2 stored on a computer-readable storage medium, comprising, for each import route
3 target ImpRT attribute configured on said PE router,
4 a pointer to a virtual routing forwarding (VRF) table having said respective
5 ImpRT attribute, and
6 an association between each said VRF table and a respective sub-RIB,

wherein a route refresh operation is performed only ~~if~~when a match between a modified ImpRT attribute and an attribute stored in the VRF table is not found, and
for peers that do not support the route refresh feature, maintaining rejected routes in a rejected routes tree.

17. (Canceled)

18. (Currently Amended) A tree data structure stored on a computer-readable medium for enabling modification of virtual routing forwarding (VRF) tables at a PE router, comprising, for each import route target ImpRT attribute configured on said PE router,

a pointer to a VRF table with said respective ImpRT attribute, ~~and~~

an association between each said VRF table and a respective sub-RIB,

wherein a route refresh operation is performed only ~~if~~when a match between a modified ImpRT attribute and an attribute stored in the VRF table is not found, and
for peers that do not support the route refresh feature, maintaining rejected routes in a rejected routes tree.